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ABSTRACT

Three non-academic teaching strategies were evaluated for their impact on the academic, behavioral, and self concept learning of 40 trainable mentally retarded and 44 learning handicapped children (8-12 years old). The children in each category were divided into four groups: a control group, a visualization training group, a relaxation training group, and a motor training group. Children in the control group were read children's literature. Instruction was given 20 minutes a day, 4 days a week for 11 weeks. Pre- and post-testing was given in the areas of academic achievement, classroom behavior, and self concept. The trainable Ss also received testing in basic skills. Control and experimental groups both experienced growth without significant differences. (Among appended materials are copies of the test used; outlines of the daily schedules for relaxation, visualization, and movement programs; additional information on the movement program; information on the intervention program for controls; and sample letter charts.) (Author/SBH)

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The Effectiveness of Teaching Strategies on Performance of Handicapped Pupils

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Gilbert R. Guerin, Ph.D.
Project Director

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Department of Special Education
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FOREWORD

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The credit for coordinating the many elements of this project goes to Susan Winton, master teacher and project manager. Her tireless effort and skillfull leadership was instrumental in the successful implementation, maintenance and conclusion of the project. Dr. Montemurro is thanked for his role in research design and data processing and Dr. Neufeld for her contributions to the rational and strategies of movement used in this project.

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ABSTRACT

Three non-academic teaching strategies were evaluated for their impact on the academic, behavioral and self concept learning of trainable mentally retarded and learning handicapped children. The children in each category were divided into four groups: A control group, a visualization training group, a relaxation training group and a motor training group. The children in the control group were read children's literature. The instruction was given twenty minutes a day, four days a week and for eleven weeks.

Pre-post testing was given in the areas of academic achievement, classroom behavior, and self concept. The trainable children also received testing in basic skills. Forty trainable and 44 learning handicapped children, ages 8 to 12, completed the program. The results were studies using the analysis of covariance with post-test scores acting as the dependent variable. Only two significant differences were found, and those were in such random areas that they suggest little in the way of interpretation. Control and experimental groups essentially experience growth without significant differences.

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Chapter 1

HISTORICAL OVERVIEW AND LITERATURE REVIEW

This project investigated the effect of three non-academic teaching strategies on the acquisition of academic and behavioral competency by handicapped pupils. Each strategy provided either a unique instructional mode or a complimentary element in instruction. Hence, the study focused on activities that enhanced rather than replaced current instruction.

The three strategies under investigation were imagination (visualization), relaxation (progressive and breathing) and movement (dance). Each strategy provided a somewhat different condition for learning and each program had a different theoretical base. Limited applications of each strategy had, in earlier reports, demonstrated evidence it could be used to improve student performance or behavior (Mercer & Snell, 1977; Watson & Hall, 1977; Cratty, 1969, 1970). Prior work, however had involved different pupil populations or rather narrowly defined applications. None of the strategies had been widely acknowledged for their possible use with the handicapped and none were in wide use in commercial instructional programs.

The three strategies involved mental operations that were simultaneous, holistic, visual or intuitive. Each, therefore, provided learning experiences that are most closely associated with right brain hemisphere activity (Nebes, 1974; Ornstein, 1972; Sperry, 1968; Grady and Luecke, 1978). Each instructional program in this project also included, as a part of each lesson, imagined or real experiences with language or academic activities. These activities were analytic, linear or sequential and more closely associated with left brain hemisphere operations. There was an intentional blending of activities that, in theory at least, involved the dominant functions of both right and left hemisphere.

The investigator acknowledged the speculative nature of hemispheric functioning and while it was not a critical aspect of the research, it seemed worthy of consideration since children with learning disabilities and with dyxlexia, have been reported to exhibit unusual patterns of

cerebral organization or brain electrical activity (Preston, 1974; Conners, 1970; Clements, 1966; Johnson and Myklebust, 1965; Bryan, 1964; Gordon, 1963; Orton, 1937). It has also been widely acknowledged that traditional instruction in most school subjects is linear and analytic. These same approaches have been generally unsuccessful with the learning handicapped child.

A review of the history, current literature or rational for each strategy is presented along with the literature that relates to the supporting strategies used in each program. The area with the most research is that of imagery, less is known about the uses of relaxation and almost nothing is reported on dance movements and the handicapped.

Imagination

Research

Most studies on the use of visualization and imagery in learning have been conducted with normal or retarded children. Virtually no studies have been done with the learning handicapped. This review includes those studies of normal and retarded children that appear the most promising and useful for the two populations and the teaching strategies under consideration.

The most current and comprehensive review of research on imagery and children's learning is that by Michael Pressley (1977). He concludes his review with seven discussion statements that summarize his findings. Those most relevant to this project are condensed as follows:

1. The one indisputable fact about imagery is that imposed pictures are almost always better learned than words.
2. The potency of pictures increases with the age of the child.
3. The ability to increase learning by self-produced internal visual elaborations is a developmental phenomenon and such elaborations are produced for some tasks by age 8.
4. There are variations in the effect of visualization on different individuals.

Images as discussed here and as used in the project are of two types, imposed and self-produced. Imposed images are those presented

in some concrete form as in pictures or in words. Self-produced images are those created by the child in his mind. Imposed images are recognized by the very young child; self-produced images, at least those subject to external verification, are evident in the child 5 years and older. Evidence to support these observations can be found in a number of studies. Kerst and Levin (1973), for instance, found that self-produced images could increase learning effectiveness in fourth and fifth grade children. Wolff and Levin (1972) found that it was a skill that could be taught to 8 year olds (3rd grade). Bender and Levin (1976) working with younger children found that kindergarten children could improve learning performance when they imagined an interaction between the elements to be learned. Yuille and Catchpole (1973) working with 5 year olds and Varley et. al. (1974) working with 6 year olds found that when children were given simple instructions requesting the use of visualization the children learned more effectively.

Some researchers have looked at the impact of motor (practice, manipulation) activity on visualization and learning. Varley, Levin and Severson (1974) found motor activity in a learning task enhanced learning for children in grades kindergarten and first. Manipulation of the objects to be learned seemed to improve learning the task. In 1972 Wolff and Levin were lead to speculate that "accompanying motor activity was necessary in order for young children (kindergarten) to construct facilitative mental images." (from Pressley 1977, p. 594). This speculation was supported by findings that overt activity aided the development of image production (Silvern and Yawkey, 1977). They found that kindergarten children learned imagery better through verbal directions.

There is, however, conflicting evidence on the need for manipulation and movement. Bender and Levine (1976) indicated that motor activity did not induce imagery in the associative learning of pre-imagery young children. Yuille and Catchpot (1973) had earlier found that kindergarten children could generate an image when planning an action and that direct contact with an object did not improve memory performance.

The age at which imagery can be introduced as a learning strategy is important in this study because while all the children in the sample

were between the ages of 8-12, the mental ages of the trainably retarded children ranged from 3 to 6 years. The retarded children were in the pre-imagery or early imagery mental age group. The positive results with young children demonstrated by Bender & Levine (1976) is particularly relevant and suggests the appropriateness of some use of imagery with young children equivalent in mental age to the severely retarded children in this study.

The successful use of imagery as a rehearsal strategy with the retarded has been demonstrated in a number of studies (Bugelski, 1968; Yarmey and Bowen, 1972; Lebrato and Ellis (1974); Whitely and Taylor, 1974). A comprehensive review of the use of imagery with the retarded can be found in the text by Mercer and Snell (1977). A few of the implications of the research cited by Mercer and Snell are condensed and presented below.

1. The retarded seem deficient in creating images of objects when given words alone.
2. Instructions to use nonverbal imagery aides both intentional and incidental learning.
3. Reliance on instructions as well as pictures increase the probability of later independent use of imagery.

Learning by observation was used in each of the three teaching strategies especially those presented to the retarded children. That is, the teacher often demonstrated the activity and the children watched as each child completed the task. Cullinan, Kauffman and La Fleur (1975) reviewed the literature on the use of observational learning and the deviant child. They reported that observational learning was a viable and relatively untapped strategy in behavioral change. Studies with the mildly and severely retarded indicated that most retarded individuals learn or are capable of learning by observation (Mercer & Snell, 1977).

Because there were so few studies with the severely retarded, further generalizations are not warranted.

Programs

Examples of the use of imagery in instruction are found in a variety of books and articles. Two books that supported the expanded use of imagery were published in 1968, George Leonard's Education and

Ecstasy and Richard Jones' Fantasy and Feelings in Education. An example of a curriculum model was that of Weinstein and Fantini in Toward Humanistic Education (1971). The use of metaphors to increase man's creative ability was introduced in a systematic way in Synectics (1961) and again by the same author in 1960 in The Metaphorical Way of Learning and Knowing. A much more expansive and speculative approach to the use of metaphors was the Metaphoric Mind by Bob Samples (1976). In Wishes, Lies & Dreams, Teaching Children to Write Poetry, Koch (1970) demonstrated how visualization and other created imagination strategies can improve the poetry skills of disadvantaged children.

Awareness and imaginative activities can be found in a large number of books. The following are a selection of publications that provide experiences in the visualization: DeMille's Put Your Mother on the Ceiling (1973); Hendricks' and Wills' The Centering Book (1975); and Stevens' Awareness (1971); Guerin's Ten Creative Experiences (1973).

Relaxation

The use of relaxation in the classroom is neither unique nor new. Over the centuries teachers have used strategies designed to "calm children down" during periods of high excitement or tension. Probably the most commonly used procedure is to ask pupils to be quieter and to move more slowly, methods used to control the effects of tension. Children are also asked to put their heads on their desks and close their eyes and some teachers read or sing to their students. Music is used to sooth the emotions of pupils and the teacher also use periods of quiet recreation or times of quiet eating.

Most strategies of relaxation are more appropriate for young children than for older children. Older children are expected to have "built in" methods for achieving relaxation. An older child is told to "calm down" and is usually given a sedentary activity in the hope that relaxation will follow. The difficulty experienced in making the transition from excitement or anxiety to rest or relaxation is evident in the persistence of tension and anxiety found in both children and adults. Relaxation is generally not taught in school and older children and adults who fail to

master an adequate relaxation response (Benson, 1975) suffer sporadic or chronic problems of physical tension. The toll in learning is unknown.

The use of relaxation to improve academic achievement has been demonstrated in several studies (Carter and Synolds, 1974; Watson and Hall, 1977). Researchers Schneider (1974), and Simpson and Nelson (1974) have shown that it can also be used to improve behavior. Its use in special education has been shown by Schiff, et. al. (1977), Lupin, et. al. (1976) and Braud, et. al. (1975). Research demonstrating that young children can be taught to relax can also be found in the works of Hendricks and Wills (1975), Fredrick (1975) and Rossman (1977). Failure to achieve change using relaxation has also been reported (Lupin, et. al. (1976) and Aronsin, et. al. (1977).

Three methods of relaxation were selected for use in this study, two were active, somatic methods, one a passive cognative method (Davidson and Schwartz, 1976). Progressive relaxation, one of the somatic or physical methods, was developed by Jacobsen (1938) in the late 1920's; breathing strategies, the second somatic method had its origins in yoga practiced centuries ago. The third method, and only "thinking" strategy is that of autogenic training and originated with Schultz (1959) in the early 1900's. In this study, the three exercises were used in combination.

The supplemental strategy of "talking to yourself" was incorporated into the relaxation program. This procedure with minor variation can be found in the work of Meichenbaum and Goodmar (1968), Schmidt (1976), and Watson (1977). It involves having the child learn to speak to themselves before acting and in each of the studies or reports cited it has lead to behavioral improvement.

Also included in the programs of visualization and relaxation were strategies of covert behavior rehearsal. (Lazarus, 1966). The child was asked to think or visualize specific experiences and to consider them under varying conditions. This strategy is widely used in behavior therapy programs.

MOVEMENT

Recognition of the importance of movement in the daily lives of the handicapped has lead to the development of a number of movement programs (Barsch, 1967; Cratty, 1967, 1968; Getman, 1964; Hackett, 1970; Kephart, 1960). Such programs have several purposes: they are designed to increase movement skill, to provide better self awareness and to improve general learning.

Although movement has been used in a number of programs in the area of special education, dance has received little or no attention. Dance is ignored in all the major contemporary generic texts in special education and music is seldom mentioned. One of the few statements on music can be found in Kirk's (1972) text. The statement is reported here in its entirety to demonstrate the brief attention given to the subject.

> "Music. Music is a medium through which trainable children can learn many things. Singing, rhythm bands, music games, and other activities help release energy and also serve as a form of expression and socializing influence." p. 233

Neufeld (1977) in a study on 7 to 9 year old remedial reading students, however, found that instruction in dance followed by a period of verbal reporting did result in significant changes. The dance study was conducted with twenty-six students who were equally divided between experimental and control groups. Experimental students made significant gains in reading comprehension and total scores on Piaget tasks. The Piagetian emphasis in this activity was based on an interpretation of Piaget's (Inhelder and Piaget, 1969) sensori-motor development and its relationship with the growth of logic and cognition.

Rational

Neufeld (1977) contends that learning to read as well as other academic tasks are related to physical versions of the concepts to be learned. Piaget (Inhelder and Piaget, 1969) has demonstrated that "logical operations (i.e. in particular, classification and cross-classification, and seriation and multiple seriation) are closely linked with certain actions which are quite elementary: putting things in piles, separating into lots, making alignments, and so on." (p. 291). He further

states that "First of all, there is a beginning of coordination between segments of overt behavior; next the adjustments become sufficiently far reaching to make the actions increasingly intentional; finally, they take the form of mobile and reversible operational structures."

Neufeld's rational is as follows:

"If it is true, as Piaget contends, that knowledge is rooted in action, then it would seem to follow that the beginnings of coming to know something or anything, must be based on some sort of active involvement on the part of the learner. For Piaget, this active participation usually takes the form of action on objects, interaction with other beings, and movement in space. Growth or development, that is, the construction of knowledge as opposed to merely acquiring content, takes place as the learner confronts perburbances in his/her environment which are dealt with and resolved, or equilibrated. These equilibrations in turn become the bases for new awareness and his/her environment are changed in the process. Each new encounter is made from a new perspective on a changed environment.

Of the three curricular components mentioned above, movement in space has perhaps been considered least in formulating programs designed to provide children with the prerequisites for learning. And yet, it is possible that it is at least as essential to their optimal development as is the manipulation of objects and the interactions with others. Movement programs such as Movement Exploration, dance therapy, motor-perceptual programs have emerged over the years. The goals of such programs usually focus on some form of physical development, such as large and small muscle coordination, perceptual development, or eye-hand coordination. As valuable as these goals are for the effective progress of learning, they vary from the intentions of the movement program of the present study.

It is theorized in the present study that there are perhaps some prerequisites to the relatively formalized learning activities that children encounter in their typical school experience, whether that experience takes place in an ordinary classroom setting, in a class for remedial readers, or in a special education classroom. These prerequisites which perhaps form the real basics of children's education are in fact

the physical versions of the concepts which it is deemed important that children acquire in their years of schooling.

The problem here is to have children experience at a physical level those cognitive structures that underlie such academic pursuits as reading and mathematics. Such cognitive structures might include the following: spatial relationships, reversibility, identity, compensation, classification, seriation, laterality, directionality, symmetry, mirror imaging, balance, rhythm, beat, flips, rotations, patterning, position, corrdination of various body parts, and many others. Will children who draw on experiences that are rooted in physical movement develop more stable cognitive structures that can serve them in typical school subject areas?

It is also theorized in this study that movement alone is not enough to develop sound footings for congitive pursuits. In addition to the physical movement, it is believed to be essential to have children reflect on that movement. That is, physical movements as prerequisites to more abstract systems of thinking will perhaps be most effective if the child also experiences the process of attempting to raise those physical movements to his/her intellectual level."

Chapter 2

METHODS

This research project investigated the effectiveness of visualization, relaxation, and movement on the acquisition of academic and behavioral competency of Learning Handicapped (L.H.) and Trainably Mentally Retarded (T.M.R.) children, ages 8-12. Children were randomly assigned to a visualization, relaxation, movement or control group. The control groups received literature programs (Appendix D). Pre-Post tests for achievement, self concept, IQ and a behavioral observation were completed on each child. The children received eleven weeks of instruction, twenty minutes each day, four days per week. Testing and instruction was done by eight teachers who had completed two weeks of training in all testing and instructional procedures.

The methods used in the study will be presented in three sections: (1) sampling procedures; (2) research design; (3) teaching programs.

Sampling Procedures

Forty-eight Trainable Mentally Retarded children and forty-eight learning handicapped children, ages 8 to 12, participated in the study. The T.M.R. children were chosen from three schools for the trainable mentally retarded operated by the Santa Clara County School's Office. Permission was sought and obtained from the Santa Clara County Director of Special Education, school principals, teachers and parents. Twenty-four children in one school were divided randomly into two groups of twelve children each. Twelve children were chosen randomly from each of the two remaining schools. The four groups of twelve children were then randomly assigned to one of the three treatment groups or the control group.

Four self-contained learning handicapped classes with twelve children in each class were chosen randomly from twenty-five learning handicapped classes in the San Jose Unified School District. Permission for the study was sought and obtained from the Director of Special Education, the participating principals and teachers. Written permission was obtained from the

parents of the children who participated in the study. The four learning handicapped classes were randomly assigned to the three treatment groups and one control group.

Research Design

Eight project teachers underwent a two-week training program designed to prepare them to administer the testing instruments used in the study and teach each of the three intervention strategies--visualization, relaxation and movement.

Upon completion of the training, the teachers were randomly assigned to one of the eight groups of children: T.M.R. visualization, T.M.R. relaxation, T.M.R. movement, T.M.R. control, L.H. visualization, L.H. relaxation, L.H. movement, L.H. control. The teachers were also randomly assigned to pre-post test one of the eight groups other than the group that they were to teach.

A battery of tests was administered to each child in the sample. Pre-post test scores from the following testing instruments were obtained for both the T.M.R. and L.H. children:

(1) Slosson Intelligence Test.

(2) Peabody Individual Achievement Test.

(3) Coping Analysis Schedule for Educational Settings (CASES, Spaulding, 1976).

(4) The Learning Environment Behavior Rating Scale. (Appendix A)

Self concept tests were chosen to match the ability levels of the two groups of children. The L.H. children took the Piers-Harris Self Concept Scale (Appendix A) and the T.M.R. children the Yes-No Student Self Rating Test. (Appendix A).

Three additional tests were administered exclusively to the T.M.R. children.

(1) The Verbal Expression, Auditory Sequential Memory and Visual Sequential Memory, from the Illinois Test of Psycholinguistic.

(2) A Basic Skills Inventory which sampled ability to print one's own name, write numerals one to ten, count up to ten objects, and recognize letters and numerals.

(3) Criterion reference Writing Skills test (Appendix E) administered before first and after last day of skills instruction.

The test observers used for CASES had been pretrained by the test author and had an established inter-rater reliability of .80. They were not aware of the nature of the study and only provided the pre-post testing on CASES.

Pretesting was conducted in January with the exception of criterion reference testing. The criterion tests were given to all T.M.R. children in the eight and twelfth week of the study. All children received eleven weeks of instruction and were post-tested in May. The children were taught in groups of four and all were scheduled to receive twenty minutes of instruction four days per week for eleven weeks. Teachers in the six intervention groups worked from detailed daily lesson plans. Upon completion of each day's lesson, the teachers noted the progress and behavior of each child in a log prepared for that purpose. Throughout the eleven weeks of teaching, the teachers met with the project director and the project manager once each week to discuss possible variations in the programs.

Teaching Programs - This section includes a brief description of each of the six teaching programs used in the study.

(1) Imagination and Visualization Program for Trainable Mentally Retarded Children

Each of the forty-four, twenty minute lessons in the imagination and visualization program contained six different activities: (1) Imagination/Demonstration, (2) Guided Imagination, (3) Be a ..., (4) Think of ..., (5) Sharing and (6) Commitment.

In the Imagination/Demonstration activity the children were asked to imagine, pretend or make believe that they were smelling, tasting, hearing or seeing various objects, or that they were asking questions, telling a story, introducing themselves, drawing a picture, etc.

The format for the imagination/demonstration activity remained the same throughout the program. For example, the teacher said:

> "Imagination is something you do in your head. It is part of thinking. You don't do it, you just think about it."

"Like, think about a glass of water." (Teacher holds up imaginary glass of water). "I make believe it's here. Now I drink it." (Teacher demonstrates.) "Now I will pour you a glass of water. I want each of you to make believe you have a glass (Pour each). "You can drink it and pretend it's good. Now ___name___ pour everyone a glass of orange juice." (Repeat using different drinks and different children pouring).

The Guided Imagination portion involved various situations that were familiar to children. Some contained imaginary play activities like swinging or playing ball, others involved make believe trips to various stores, still others included activities in school or at parties. Pictures were used with most activities.

"Be a ..." exercises dealt in some sessions with emotions, such as sad, happy, afraid, brave, tired and awake. In other sessions the children were asked to "be a" person who doesn't know what to do (confused) and then "be a" person who does know what to do, (successful). In later sessions, activities included "being a listener" or "a watcher." An example of being a listener follows:

"Be a person who hears a sound and remembers it." Listen, "Hello." "Remember that word or sound. Close your eyes and remember the sound "hello." "Remember it." Pretend you hear it, now open your eyes and say the word."

"Think of ..." activities included following directions, using visual memory or writing skills. In activities around direction, the children were to listen to the direction, remember the direction, tell themselves the direction, and then act out what they told themselves to do. Directions centered around those commonly used in a classroom setting. An example of a "think of" direction would be: "Think of getting up, walking round your chair and sitting down (Pause). "Now do it."

In "Think of" visual memory activities, children were shown a design, the design was removed and the children were asked to copy the design they had seen. Designs were simple lines or letters. The final twelve "think of" activities involved the writing program described in TMR relaxation. The sharing portion of the session was used to encourage whatever speech was available.

Each day's lesson was terminated with a commitment from the children. The commitment was illicited from the children in the form of a yes or no answer to a question posed by the teacher. For example:

> "Tomorrow morning look at what you eat for breakfast and remember what you eat. Will you do that? When I see you tomorrow, you can tell me what you ate for breakfast."

An outline of the content of each session is included in Appendix B.

(2) Imagination and Visualization Program for Learning Handicapped Children

Each of the program's forty-four, twenty minute lessons included six parts: (1) Imagination information, (2) Guided Imagination, (3) "Be a ...," (4) "Picture a time when ..." or "Picture yourself ...", (5) Sharing, (6) Commitment.

Each session opened with "Imagination Information." This was a brief statement about how imagination is useful to us and how imagination helps to create the world we know. This was followed by a guided imagination exercise. The children were given a condition or situation to imagine and then led through a series of steps in an imaginary movement or activity. The situations covered a wide range of topics including visits to the beach, a store, various parts of the school, etc. The children were reminded to notice colors, sounds and smells in the different situations. The teacher would say:

> "Close your eyes. Today we will take a trip around the school yard. First pretend the yard is empty. You are the only one on it. See how it looks. I'm going to ask some questions. Don't answer out loud but remember your answers and share later. What does the ground look like; the paving, dirt or grass?" (silent responses). "What does it would like on the yard when you are the only one there? You can play for a minute by yourself if you wish. Now put a lot of children in the yard. See yourself out there playing. How is it going? Is it fun? The sun is shining. Get ready to come in. Do what you are supposed to do when you come in. Now be in this room. Open your eyes."

The third part of each day's lesson gave the children an opportunity to "Be" animate and inaminate objects in a variety of settings and conditions. Several of the lessons involved objects that the children use in school like:

books, pencils, tables, desks and words. For example, when the exercise called for being a pencil, the teacher said:

> "Close your eyes and pretend to be a pencil. I want you to be a pencil just laying on a desk. Think of the color you are and the shape. Now someone picks you up, sharpens you, and starts to write with you. You are writing across a piece of paper, you are moving smoothly. Now you are a pencil writing on a test. Now you are a pencil drawing a picture. You are a pencil writing a telephone number, a pencil in someone's pocket, a pencil in your desk. You are you in this room. Open your eyes."

"Picture a time when" or "Picture yourself" activities were tied to reality in that all involved situations familiar to the children. In this exercise they were asked to "picture themselves feeling" sad, happy, mad, afraid, excited, etc., or "picture a time," when they couldn't do their school work, when they failed, when they succeeded, when their behavior in school was bad or good, when they lost or won a game, had a fight, or when they felt uncomfortable with grown-ups. Although the content changed, the format for this activity remained the same. For example:

> "Close your eyes. Picture a time when you were doing arithmetic and didn't understand it. Keep it to yourself now so you can talk later. Picture another time when you were doing arithmetic and you are not doing well. Now see yourself doing arithmetic and it is going well for you. You understand it, it is easy. Again, see a time when arithmetic is easy for you. You are doing it, getting it and it is easy. Put yourself here now, sitting in this room. Open your eyes."

The commitment was an agreement by the children to use some element of the day's lesson before the next imagination/visualization session. Each day the commitment focused on a different part of the day's lesson. For example:

> "Between now and tomorrow I would like to have you look at your desk in class once or twice and think about a good thing it means and a bad thing it means to you. Whatever it is that you have happen to you, good or bad, remember it for tomorrow."

Content of daily lessons is provided in Appendix B.

(3) Relaxation Program for Trainable Mentally Retarded Children

The relaxation program for Trainable Mentally Retarded children included forty-four lessons designed to take twenty minutes each day. Some lessons were repeated. The purpose of the program was to make the children aware of the tension in their bodies and give them methods for coping with that tension.

Each twenty minute lesson included a list of the necessary materials for that day, an introduction, a relaxation exercise, a breathing exercise, a situation, then practice and a conclusion.

The introduction was to prepare the children for the session. An example of the first day introduction follows:

> "You are going to do some things today and for the next few days, so that you can relax when you want to. Start by sitting on the spots on the floor. One person on each spot. Each day you will come to a spot on the floor."
>
> "I like the way you were seated. Good (to each). Now I want you to pretend you are sleeping. Watch me. I close my eyes and let my head go down, like I'm sleeping. Now you do it. Eyes closed. Head down. That's good, I like the way you're sleeping. Pretend you are sleeping with your eyes closed. Now let's wake up. Head up. Eyes open. Good. Be relaxed and loose."

The introduction was followed by a progressive relaxation exercise which the teacher explained and demonstrated simultaneously. Progressive relaxation exercises involved the intentional muscle contraction and release of one or two parts of the body each day (Appendix B). Sponges were grasped and released in the early sessions in order to teach the procedure.

From the beginning, progressive relaxation was combined with "talking to yourself." The children were asked to verbalize as they tightened and relaxed their muscles. For example, the teacher would say:

> "Today we are going to close our hands and you will tell yourself to do it." "Watch me." (demonstrate).
>
> "In a normal voice I say, Close my hand/tight/hold it/ let go."
> "In a whisper say Close my hand/tight/hold it/let go." To myself I say it. (demonstrate and then have each child do it while others watch and listen).

In later lessons autogenic training was added. The children were asked to feel their body parts as "warm" and "heavy" when they did their relaxation exercises.

The third portion of the lesson involved yoga-like breathing exercises. The children were taught "proper breathing," "cleansing breathing," "standing breathing," and proper breathing in a standing position. An example of the directions follows:

> "We are now going to do some special breathing, (proper breathing), so watch me (demonstrate as you speak). I lay back on the floor so I can see the ceiling. I look at the ceiling and get comfortable (wiggle around). I put my hand on my stomach, on my belly. When I take a deep breath my belly goes up. When I blow it out, my belly goes down." (Repeat once and blow out making noise).
>
> "I want you all to lay on your backs (help those that need assistance). Put one hand on your stomach. We are going to do it one at a time, and I want you to listen and notice if you can hear _____(name)_____ blow out." (Rotate to each child and allow only two trials each. Encourage and ask if the child's blow out could be heard. Help each to sit up as each is finished). "Everyone stand up and stand on your spot. Take one deep breath. Breathe in, belly out. Breathe out, belly in."

This program progressed from breathing exercises practiced while laying on the floor to breathing exercises in standing and sitting positions.

Once relaxed, the children were given a situation to consider. The first ten lessons involved stem sentences which were aimed at heightening the children's awareness of their emotions. The next few lessons were related to feelings the children had concerning their school work. This was followed by situations which the children were to think about doing something, then tell themselves to do something and then to act on it. The final set of situations focused on increasing the children's attention span and visual spacial memory. The format was the same for all of the lessons. An example of a situation related to feelings the children had concerning their work was:

"Think of a time when you did not finish your school work." When you were not finished when you thought you should be." Stay loose and relaxed.
"Now think of a time when you finished your work. You got all your school work done."
"Take a deep breath and relax."

Each lesson ended with a commitment or practice exercise. The practice exercise required the child to do something during the day and report it the following day. The first twelve practice exercises centered on improving the child's ability to follow directions. Lessons thirteen through twenty-four involved attention span and visual-spacial memory.

In the concluding portion of the final twelve lessons, a writing skills lesson was presented. Each child was shown a letter and asked to look at it and copy it. This was repeated for every letter in the alphabet. The program was individualized in that each child began with the letters he or she was unable to copy on the pre-test. During the practice portion of the lesson, each child was given a practice sheet with the letter he or she was working on at the time. The children traced the letters using a fading line technique. This activity was presented to the T.M.R. experimental and control groups. An example of this instructional program is in Appendix E. An outline of the contents of the daily sessions is given in Appendix B.

(4) Relaxation Program for Learning Handicapped Children

The relaxation program for Learning Handicapped children was made up of forty-four, twenty minute lessons each designed to make relaxation an available and useful procedure for coping with daily experiences. Each twenty minute lesson included a relaxation, breathing, situation, sharing and commitment activity.

In the progressive relaxation exercises the children tensed a muscle or muscle group, noticed the tension then released the tension or let it "flow out." The format for the progressive relaxation exercises remained the same throughout the forty-four sessions. Several muscle groups were included in each session. An outline of the content of the sessions is provided in Appendix B.

One of five types of Yoga-like breathing exercises was included in each day's lesson plan. The breathing always followed either progressive relaxation or autogenic training. The autogenic training, used in this program involved thinking of parts of the body as "warm" or "heavy." The sequence of body parts was the same as that in progressive relaxation.

The third part of each day's lesson involved a "situation" activity. The types of situations included: (1) general emotions, such as mad, angry and happy; (2) emotions related to particular contexts such as the school setting, conditions of frustration, examples of failure or activities involving academic skills or success; (3) emotions related to a social environment, such as meeting a stranger, not knowing what to say, or playing with others. An example of a "situation" exercise dealing with general emotions:

> "I want you to stay relaxed and think of a time that you got mad. Remember what happened and how you got mad. Feel the anger in your body. Now be relaxed. Remember your breathing. Now forget about being mad and think of a time that you were happy, feel happy in your body. Now be relaxed. Enjoy being happy. Now return to this room. Be here in this room, sitting and relaxed. Get in the mood to talk with the others in the room." (10 to 15 second intervals between feelings).

Each "situation" activity was followed by "sharing." The sharing segment of the lesson was designed as a follow-up to the commitments that had been made in the previous sessions. Each child also had the opportunity to describe the way he or she felt during the day's "situation" exercise and how they used relaxation in their daily lives. The format for the "sharing" portion is exemplified below.

> "Take a minute to share with your neighbor what it's like to be afraid. What did it feel like and where (in your body do you feel it? What is it like to be afraid?" (Pause for sharing).
>
> "Now share how you practiced relaxation or breathing since our last session." (Ask each to share and work out plans to remind those who did not practice).

After the children shared how they fulfilled the previous day's commitment, they made a new commitment. The purpose of the commitment activity was to identify those strategies that best suited each child and to facilitate a smooth and natural use of the relaxation program in their everyday life.

In asking for a commitment, the teacher said:

> "Now decide where you are going to use relaxation next. Think about it for a moment. Make it realistic, something you know you might be able to do. Now tell your neighbor."

The content of daily sessions is given in outline form in Appendix B.

(5) Movement for Trainable Mentally Retarded and Learning Handicapped Children

The movement program was similar for both groups of children. In each movement session there was a dance period and a reflection period. Dance was taught by demonstration and leading. There was a minimum of verbal directions. At the conclusion of each session, each child was asked to verbally report what they had learned.

The instructional pace for teaching the dances was anticipated to be slower for the T.M.R. than the learning handicapped; however, the same lesson format was used for each group. Since each teacher had been taught the dance before student instruction began, the lesson plans acted as a reminder, provided a detailed breakdown of each dance and suggested the pace for introducing each step.

A content outline, a description of the movement program, the inquiry format and several sample sessions are included in Appendix C.

Chapter 3

STATISTICAL APPROACH AND ANALYSIS

Descriptive statistics were used to define the student sample and included age, sex and IQ. Data was reported in mean, standard deviation and range for each handicapped classification (Table I and Table II). Similar data was provided for each treatment and control group.

The research reported herein was conducted in intact classes with the treatments randomly assigned. The treatments consisted of three groups designated relaxation, visualization and movement with one control group. Pre-test and post-test scores were collected for each subject by trained examiners. To adjust for the possible initial differences in achievement that might exist within class, an analysis of covariance was conducted using a post-test, the dependent variable, and pre-test of achievement where the pre-test was the covariate.

The original population under study consisted of forty-eight learning handicapped and trainable mentally retarded students enrolled in public school programs. Through attrition and absenteeism the final analysis was conducted on forty-four learning handicapped and forty trainable mentally retarded pupils.

The analysis of covariance was preceded by the construction of a correlation matrix for each of the variables under study. The purpose of this step was to determine the degree of correlation between the pre-test and the post-test scores and to discover any additional variable that might correlate highly with the dependent variables and could, therefore, be employed as a predictive variable in further research studies.

As predicted, the correlation among the pre-test and post-test scores ranged from a high to a moderate level. For the trainable mentally retarded scores, the correlation ranged from .85 for reading to .48 for basic skills. Mathematic, spelling and general information had correlation of .68, .58 and .65 respectively. Moderate correlation was found between IQ and achievement scores. Age, on the other hand, had low or even negative correlations with achievement scores.

Among the learning handicapped pupils, the correlations among the pre-test and post-test scores were found to be even higher than the trainable mentally retarded subjects. The highest correlation was .895 for general information and the lowest score was .58 for the Pier-Harris self concept scale. Mathematics, reading comprehension, spelling and teacher evaluation L.E.B.R.S. had correlations of .75, .89, .87, .71 and .74 respectively. Low to moderate correlations were found among IQ and achievement scores with the Pier-Harris index having a low negative correlation with IQ. Age also was found to have a low correlation with achievement.

Of note within the learning handicapped subjects, high intercorrelations were found among the achievement scores of reading comprehension and spelling. The Learning Behavior Environment Rating Scale (L.B.E.R.S.) was found to have low negative correlations with achievement scores.

One additional step was taken prior to the final analysis. One-way analysis of variances was conducted for each variable across treatment groups and the control group. The purpose of this step was to uncover the degree of difference that existed among groups for each variable under study. Within the T.M.R. subjects, the spelling pre-test scores were to differ significantly, $F = 3.76$, $p < .02$ for 3 and 36 degrees of freedom. Within the Learning Handicapped subjects, significant differences were found for age, $F = 8.40$, $p < .0001$ df 3,40; reading $F = 5.23$, $p < .003$ df 3,40; Teacher evaluation (L.E.B.R.S.) $F = 6.13$, $p < .002$ df 3,40.

Chapter 4

DATA PRESENTATION AND RESULTS

Sample

Complete data was collected on forty-six T.M.R. students. Descriptive data revealed that 59 percent of the students were male while 41 percent were female (Table I). The mean age was 10 years, 3 months with a range from 8 years, 2 months to 12 years, 8 months. The mean IQ was 37 and the range 20 to 57.

TABLE I

DESCRIPTION OF T.M.R. SUBJECTS

SEX	AGE*	IQ**
27 Males - 49%	Mean - 123.70	Mean - 37.14
19 Females - 41%	S.D. - 14.08	S.D. - 7.88
46 Total - 100%	Range - 98-154	Range - 20-57

*Months
**Slosson

Forty-seven learning handicapped children completed participation in the study. Eighty-three percent of them were males and 17 percent were females (Table II). The average age of the sample was 10 years, 6 months with a range from 8 years, 2 months to 12 years, 8 months. The average IQ was 89, with a range of 62 to 117.

TABLE II

DESCRIPTION OF L.H. SUBJECTS

SEX	AGE*	IQ**
39 Males - 83%	Mean - 127.15	Mean - 89.47
8 Females - 17%	S.D. - 13.53	S.D. - 13.19
47 Total - 100%	Range - 99-154	Range - 62-116

*Months
**Slosson

The pretest scores for the trainable mentally retarded are presented in Table III and post-test scores in Table IV. A breakdown is given for sex, age and IQ for each of the treatment and control groups in the pre-test data.

The pre-test and post-test scores for the learning handicapped populations are presented in Tables V and VI respectively. Again, breakdowns for group sex, age and IQ data are presented in the pre-test table.

The final step in the research design employed the use of analysis of covariance. This test attempted to answer the question whether the addition of treatment information added significantly to the proportion of variance accounted for by the covariate (pre-test scores). To determine whether the treatment groups added significantly to the variance, an F test was made of the difference between the variance for the covariate and variance for the covariate plus treatment groups. This procedure was used for all the dependent variables (post-test scores).

Within the trainable mentally retarded population, the analysis of covariance was conducted for the following post-test scores: Reading, Math, Basic Skills (BS) test, Spelling and General Information.

For reading, the total amount of variance explained by the presence of the pre-test plus treatment group was .74592. The reading pre-test scores accounted for 99 percent of the variance or .73628. In essence, the treatment provided very little in way of variance and was, therefore, not significant. The amount of variance the treatment groups contributed to the remaining post-test scores was also very small.

The total of variance explained by the combination of the pre-test scores and treatment for the remaining tests were as follows: General Information, .46962; Spelling, .42838; BS tests, .38561; and Math, .48783. As can be readily noted, the total variance for each was very small indicating that other variables not in the design could account for more of the variance than the combination of pre-test scores and treatment groups. No significant differences were found.

Within the learning handicapped population, the analysis of covariance was conducted for the following post-test scores: Math, Reading, Spelling, Comprehension, General Information, Pier-Harris and Teacher Evaluation (LEBRS).

TABLE III

PRE-TEST SCORES FOR TRAINABLE MENTALLY RETARDED BY GROUPS

GROUPS	SEX M	SEX F	AGE	I.Q.[1]	MATH[2]	READING[2]	SPELLING[2]	GEN. INF.[2]	TOTAL[2]	CASES[3]	Y-N[4]	LEBRS[5]	BASIC SKILLS
VISUALIZATION	8	4											
Mean			120.33	35.58	6.33	6.75	8.83	3.17	25.08	5.21	10.36	43.00	8.09
S.D.			10.73	7.00	2.02	1.36	3.64	2.52	6.46	.63	2.94	12.48	6.12
Mean Grade Equiv.					.00	.10	.20	.00	.00				
RELAXATION	8	4											
Mean			126.83	37.08	6.00	7.50	5.00	3.67	22.17	5.11	12.20		9.36
S.D.			15.30	9.73	2.52	6.32	5.41	2.53	14.93	.85	.92		5.75
Mean Grade Equiv.					.00	.20	.00	.00	.00				
MOVEMENT	4	8											
Mean			122.25	41.40	8.33	10.00	7.92	3.92	27.75	5.68	12.00		9.33
S.D.			17.87	8.40	4.21	8.50	7.37	2.61	22.19	.61	2.24		7.02
Mean Grade Equiv.					.00	.40	.00	.00	.00				
CONTROL	7	5											
Mean			125.70	38.80	6.00	7.30	4.00	3.70	21.00	4.96	10.50	41.50	7.67
S.D.			11.75	4.57	2.11	4.55	5.46	2.00	12.09	.33	2.83	8.02	6.11
Mean Grade Equiv.					.00	.10	.00	.00	.00				

1. Slosson reported in raw scores
2. Peabody Individual Achievement Test reported in raw scores
3. Coping Analysis Schedule for Educational Settings
4. Yes - No Test
5. Learning Environment Behavior Rating Scale

TABLE IV

POST-TEST SCORES FOR TRAINABLE MENTALLY RETARDED BY GROUPS

GROUPS	MATH[1]	READING[1]	SPELLING[1]	GEN. INF.[1]	TOTAL[1]	CASES[2]	Y-N[3]	LEBRS[4]	BASIC SKILLS
VISUALIZATION									
Mean	7.45	7.55	9.91	3.82	28.73	5.04	11.00	45.64	11.91
S.D.	3.01	2.77	4.35	2.44	7.88	.85	2.54	11.76	5.13
Mean Grade Equiv.	.00	.10	.20	.00	.00				
RELAXATION									
Mean	6.09	10.09	3.36	3.09	23.36	4.80	12.11		12.73
S.D.	1.64	6.17	6.04	1.51	11.25	.62	1.54		8.16
Mean Grade Equiv.	.00	.40	.00	.00	.00				
MOVEMENT									
Mean	8.20	12.40	10.90	4.20	35.70	4.94	11.56		12.60
S.D.	3.16	8.17	4.61	1.93	15.47	.47	3.13		7.81
Mean Grade Equiv.	.00	.70	.30	.00					
CONTROL									
Mean	5.89	6.88	6.38	3.88	23.13	4.69	10.88		12.50
S.D.	2.26	3.56	3.89	2.36	10.18	.42	3.09		6.87
Mean Grade Equiv.	.00	.00	.00	.00	.00				

1. Peabody Individual Achievement Test reported in raw scores
2. Coping Analysis Schedule For Educational Settings
3. Yes - No Test
4. Learning Environment Behavior Rating Scale

TABLE V

PRE-TEST SCORES FOR LEARNING HANDICAPPED SUBJECTS BY GROUPS

GROUPS	SEX M	SEX F	AGE	I.Q.[1]	MATH[2]	READING[2]	COMP.[2]	SPELLING[2]	GEN. INF.[2]	TOTAL[2]	PIER HARRIS	LEBRS[3]	CASES[4]
VISUALIZATION	10	2											
Mean			130.10	88.33	33.92	27.33	28.08	28.08	26.33	143.73	49.45	40.58	4.17
S.D.			13.32	15.58	8.90	5.47	6.40	7.06	13.16	31.21	18.18	7.35	.91
Mean Grade Equiv.					3.30	2.60	2.90	2.70	3.70	2.80			
RELAXATION	11	1											
Mean			135.17	90.50	38.92	37.75	35.00	31.92	31.58	176.17	58.00	35.75	5.04
S.D.			7.04	14.59	8.81	9.31	9.75	7.76	9.73	35.59	10.95	5.72	.18
Mean Grade Equiv.					3.80	4.10	3.70	3.20	4.10	3.80			
MOVEMENT	10	1											
Mean			129.91	88.09	35.45	26.91	25.18	25.27	31.73	144.55	51.20	43.45	5.09
S.D.			12.93	14.38	7.66	5.80	7.08	5.90	15.43	31.82	13.00	8.61	.28
Mean Grade Equiv.					3.30	2.60	2.60	2.30	4.10	3.00			
CONTROL	8	4											
Mean			113.67	90.83	32.42	28.75	28.08	28.58	26.00	142.50	55.45	47.92	4.73
S.D.			10.07	8.76	8.92	6.90	6.73	6.56	8.14	19.64	11.35	8.35	.38
Mean Grade Equiv.					3.10	3.00	2.90	2.80	3.70	2.80			

1. Slosson reported in raw scores
2. Peabody Individual Achievement Test reported in raw scores
3. Learning Environment Behavior Rating Scale
4. Coping Analysis Schedule for Educational Settings

TABLE VI

POST-TEST SCORES FOR LEARNING HANDICAPPED SUBJECTS BY GROUPS

GROUPS	MATH[1]	READING[1]	COMP.[1]	SPELLING[1]	GEN. INF.[1]	TOTAL[1]	PIER-HARRIS	LEBRS[2]	CASES[3]
VISUALIZATION									
Mean	37.18	29.35	29.09	29.55	30.09	155.27	43.82	48.82	4.36
S.D.	10.06	6.62	7.61	6.42	15.70	36.69	18.05	6.40	.42
Mean Grade Equiv.	3.50	3.00	3.10	2.90	4.00	3.20			
RELAXATION									
Mean	40.27	37.73	37.73	37.18	35.55	188.45	65.00	35.90	5.03
S.D.	9.76	9.24	12.57	9.39	9.99	39.94	.81	9.12	.81
Mean Grade Equiv.	4.00	4.10	4.10	3.60	4.40	4.00			
MOVEMENT									
Mean	41.90	27.30	27.60	24.10	35.60	157.50			
S.D.	10.97	5.38	9.02	6.03	11.71	30.93	58.00	44.50	4.94
Mean Grade Equiv.	4.40	2.60	2.90	2.20	4.40	3.20	13.60	9.72	.22
CONTROL									
Mean	31.50	34.58	31.33	31.17	26.92	158.33	56.75	48.58	4.54
S.D.	8.45	6.86	6.24	7.66	8.32	27.13	17.41	10.11	.32
Mean Grade Equiv.	3.00	3.80	3.20	3.00	3.80	3.20			

1. Peabody Individual Achievement Test reported in raw scores
2. Learning Environment Behavior Rating Scale
3. Coping Analysis Schedule for Educational Settings

Of the seven tests conducted, two were found to differ significantly. With the spelling post-test as the dependent variable, a F value of 3.33 was obtained $p < .05$ for 3.39 degrees of freedom. Tests of significance among the adjusted means for spelling revealed that the relaxation treatment mean, 34.87 versus the movement treatment mean, 27.77 produced a t value of 2.50, $p < .02$ for 39 degrees of freedom. Relaxation versus visual, movement and control was found to differ but not significantly (Table VII).

With the reading post-test as the dependent variable, a F value of 7.59 was obtained, $p < .001$ for 3.39 degrees of freedom. Tests of significance among the adjusted means for reading revealed that the movement treatment mean, 29.56, versus the control treatment mean, 35.57, produced a t value of 2.58, $p < .02$ for 39 degrees of freeodm (Table VIII).

With Math as the dependent variable, the amount of variance explained by the pre-test was .50802 with the treatment contributing .10033 to the total variance. For reading, the amount of variance explained by the pre-test was .79375 with the treatment contributing .07604 to the total variance. The remaining post-test scores the variance explained by the presence of the pre-test and treatment was either very low or the pre-test contribution to the total variance was very large in relation to the treatment.

TABLE VII

LEARNING HANDICAPPED

Summary of the Analysis of Covariance
for Spelling with Movement Relaxation Visual Control

SOURCE	PROP. OF VARIANCE	SS	df	MS	F
COVARIATE $R^2_{y.x}$	.50802	1537.49268	1		
TREATMENTS $R^2_{y.x123} - R^2_{y.x}$	.10035	303.643309	3	101.214	3.33*
ERROR $(1 - R^2_{y.x123})$	.3917	1185.2904	39	30.3922	
TOTAL	1.0000	3026.42620	43	*p < .05	

	TREATMENTS			
	VISUAL	RELAX	MOVEMENT	CONTROL
ORIGINAL MEAN:	29.55	37.18	25.10	31.17
ADJUSTED MEAN:	29.65	34.87	27.77	31.31

CONTRAST: Relax vs. Movement $t = 2.50$ $p < .02$

TABLE VIII

LEARNING HANDICAPPED

Summary of the Analysis of Covariance

for Reading with Movement, Relaxation, Visual and Control

SOURCE	PROP. OF VARIANCE	SS	DF	MS	F
COVARIATE $R^2_{y.x}$	.79375	2223.01894	1		
TREATMENTS $R^2_{y.x123} - R^2_{y.x}$	.07604	212.94378	3	70.98126	7.59*
ERROR $(1 - R^2_{y.x123})$	.13021	364.67365	39	9.35061	
TOTAL	1.00000		43		$p < .001$

	TREATMENTS			
	VISUAL	RELAX	MOVEMENT	CONTROL
ORIGINAL MEAN:	29.36	37.73	27.30	34.58
ADJUSTED MEAN:	31.07	32.87	29.56	35.57

CONTRAST: Movement vs. Control $t = 2.58$ $p < .02$

Chapter V

SUMMARY AND CONCLUSIONS

This study demonstrated that methods of relaxation, visualization and movement could be taught to both learning handicapped and trainable mentally retarded children between the ages of 8 and 12. The children readily learned and could demonstrate both progressive and breathing methods of relaxation. The use of sponges facilitated learning by the severely retarded. The learning handicapped, both through verbal reports and physical activities showed that they could effectively use self-produced visualization. The trainable retarded were able to produce both imitative and original movements that demonstrated their use of visualization as a basis for activity. Both groups were able to learn complex dance steps when training was essentially imitative rather than verbal. Each method was appropriately suited to the age and the nature of the handicapping condition of the children.

This study was not able, however, to demonstrate that the treatment interventions produced a significant difference in academic, behavioral or self concept learning. It is not known whether the results reflect a lack of transfer of training or whether the treatments themselves were unable to bring about a change in learning. Since the treatments occurred outside the classroom and were taught by persons other than the classroom teachers, the problem of transfer was a real consideration.

The difference between the results of this study and the positive findings in the very similar study conducted by Watson and Hall (1977) is noteworthy. The earlier study selected students from regular and learning handicapped classes who were hyperactive. These children were presented with a relaxation training program similar to the one used in this study. The method of analysis in the Watson study was that of one-way analysis of variance. In the present study, one-way analysis was used in the preliminary analysis and produced a number of significant differences. These differences disappeared, however, when the more appropriate analysis by covariance was used. Whether the different results in the two studies was the result of different populations, variations in treatment or different statistical procedures is not known.

The few significant changes that were noted were not predicted and did not follow a logical pattern. One question that can be raised was whether the control was indeed a control or whether in fact it was a fourth treatment. The control was supposed to be a neutral reading session. The control teachers soon found that in order to keep interest in this activity, they needed to choose high interest stories and allow discussion. Control teachers were interested in providing experiences that would improve their children and this may have influenced the outcome. Reading itself has, in the past, been considered a relaxation activity and, therefore, had this in common with both relaxation and visualization.

The results of the present study suggest that treatments such as those under investigation might best be studied in a research design that pairs the treatment learning with specific academic or behavioral learning. This would reduce the problem of transfer and allow for a better measure of the treatment impact on different tasks. The method of Applied Behavioral Analysis (ABA) could be used to determine the effect of a specific treatment with a variety of handicapped children and over a large number of different tasks. This method could establish the effect of the treatments on the rate of learning rather than on aggregated performance.

A number of supplementary observations about the student populations are possible from the data produced in this study. Descriptive data revealed that the majority of the learning handicapped children in the sample fell in an IQ range often referred to as the "slow learner" with some in the range of the "mildly retarded." The trainable population fell in the predicted IQ range of 50 or below.

Correlation data produced the following information. General intelligence for both the retarded and learning handicapped groups generally correlated most highly with the general information section of the PIAT (.61 for each). The correlations between math and IQ was also high in both groups. In the learning handicapped group, math-IQ correlations were considerably higher than reading-IQ correlations. Reading and spelling were highly correlated in both groups of children (.8). Comprehension was also highly correlated with spelling and reading in the learning handicapped population.

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APPENDIX A

CALIFORNIA CSDC SYSTEM

LEARNING ENVIRONMENT BEHAVIOR RATING SCALE DATE _____

TEACHER _____

PUPIL _____ AGE ____ SCHOOL _____

INSTRUCTIONS: Circle the number which most closely represents how often the child exhibits this behavior in your class or out of class school setting. (1) Do not feel I can rate this because I do not see the child in this situation (1) Seldom or never (2) Sometimes (3) Often (4) Consistently

INTERVENTION (for use of Center Staff only.)

1. ATTENDS CLASS
   0 1 2 3 4

2. FOLLOWS DIRECTIONS
   0 1 2 3 4

3. ATTENDS TO TASKS INDEPENDENTLY
   0 1 2 3 4

4. COMPLETES TASKS
   0 1 2 3 4

5. IS ABLE TO WORK WITH CLASSROOM DISTRACTIONS
   0 1 2 3 4

6. USES NON-TASK TIME APPROPRIATELY
   0 1 2 3 4

7. SHIFTS EASILY WHEN ACTIVITIES CHANGE
   0 1 2 3 4

8. ACCEPTS CORRECTION OF WORK
   0 1 2 3 4

9. WORKS WELL AS A MEMBER OF A GROUP
   0 1 2 3 4

10. ATTEMPTS DIFFICULT WORK
    0 1 2 3 4

11. CONTRIBUTES TO CLASSROOM ACTIVITIES
    0 1 2 3 4

12. COOPERATES WITH ADULTS
    0 1 2 3 4

13. DISPLAYS SELF-CONTROL IN STRESS SITUATIONS
    0 1 2 3 4

14. ACKNOWLEDGES OWN ACHIEVEMENTS (VERBALLY OR NON-VERBALLY)
    0 1 2 3 4

15. EXPRESS SELF-CONFIDENCE VERBALLY
    0 1 2 3 4

16. INTERACTS (PLAYS) WELL WITH PEERS
    0 1 2 3 4

Name _____

Date _____

Treatment Group _____

Category _____

THE YES NO TEST STUDENT SELF-RATING

This test is a short, simple Yes No test. The children should answer every item. Older children can read the questions. Younger children should have the test read to them. Time is not a factor. The test measures self-esteem and attitude toward school and self by simple, direct questions.

KIDS PICK ON ME	YES	NO
I AM PRETTY HAPPY	YES	NO
I HAVE GOOD FRIENDS	YES	NO
SCHOOL DAYS ARE GOOD DAYS	YES	NO
MY TEACHER REALLY CARES ABOUT ME	YES	NO
I AM GLAD TO BE AT SCHOOL	YES	NO
I LIKE THE WAY I LOOK	YES	NO
I PLAY BY MYSELF A LOT	YES	NO
I KNOW HOW TO BE GOOD	YES	NO
I GIVE UP WHEN THINGS GET HARD	YES	NO
TEACHERS ARE GOOD	YES	NO
NO ONE PAYS MUCH ATTENTION TO ME AT SCHOOL	YES	NO
I LIKE TO WORK AT SCHOOL	YES	NO
MY TEACHERS HELP ME	YES	NO
KIDS REALLY LIKE ME	YES	NO
TEACHERS LIKE ME	YES	NO

PIERS-HARRIS SELF-CONCEPT TEST

(Revised Experimental/Supplemental Education Version)

Here are a set of statements. Some of them are true of you and so you will x out the yes. Some are not true of you and so you will x out the no. Answer every question even if some are hard to decide, but do not x out both yes and no. Remember, x out the yes if the statement is generally like you, or x out the no if the statement is generally not like you. There are no right or wrong answers. Only you can tell us how you feel about yourself, so we hope you will mark the way you really feel inside.

1. I am a happy person . . . . . yes no
2. It is hard for me to make friends . . . . . yes no
3. I am smart . . . . . yes no
4. I get nervous when the teacher calls on me . . . . . yes no
5. When I grow up, I will be an important person . . . . yes no
6. I get worried when we have tests in school . . . . . yes no
7. I am unpopular . . . . . yes no
8. I am well behaved in school . . . . . yes no
9. I have good ideas . . . . . yes no
10. I am an important member of my family . . . . . yes no
11. I am good in my school work . . . . . yes no
12. I do many bad things . . . . . yes no
13. I behave badly at home . . . . . yes no
14. I am slow in finishing my school work . . . . . yes no
15. I am an important member of my class . . . . . yes no
16. I can give a good report in front of the class . . . yes no
17. In school I am a dreamer . . . . . yes no
18. My friends like my ideas . . . . . yes no

19. I often get into trouble . . . . . yes no

20. I am obedient at home . . . . . yes no

21. I worry alot . . . . . yes no

22. I like being the way I am . . . . . yes no

23. I feel left out of things . . . . . yes no

24. I often volunteer in school . . . . . yes no

25. I wish I were different . . . . . yes no

26. I hate school . . . . . yes no

27. I am among the last to be chosen for games . . . . . yes no

28. My classmates in school think I have good ideas . . yes no

29. I am unhappy . . . . . yes no

30. I have many friends . . . . . yes no

31. I am dumb about most things . . . . . yes no

32. I am good looking . . . . . yes no

33. People pick on me . . . . . yes no

34. I have a pleasant face . . . . . yes no

35. I forget what I learn . . . . . yes no

36. I am a good reader . . . . . yes no

37. I am often afraid . . . . . yes no

38. I can be trusted . . . . . yes no

39. I cry easily . . . . . yes no

40. I am a good person . . . . . yes no

Score: _____

APPENDIX B

T.M.R. VISUALIZATION

Daily Content

DAY	IMAGINATION	GUIDED IMAGINATION	BE A	THINK OF
1st	Pretend	Swinging	Tree	Walking to the Door
2nd	Age	Swinging	Bird	Walking to the Door
3rd	Eating	Playing Ball	Sad, Happy	Around the Room
4th	Water	Finding Something	Afraid, Brave	Turn Around
5th	Asking Questions	Rocket Trips	Afraid, Mad, Brave	Around the Room
6th	Hiding	Walking on the Ceiling	Mad, Happy	Direction Series
7th	Hiding	Walking on the Ceiling	Mad, Happy	Direction Series
8th	Chair	Playing Ball	Tired, Awake	Direction Series
9th	Drawing	Walking Around Seeing	Confusion, Understanding	Direction Series
10th	Smelling	Walking Around Seeing	Good at Playing Ball	Doing Well in Class
11th	Cold, Warm, Rough	Remembering Objects	Completion	Doing Well in Class
12th	Being the Teacher	Toy Store	Ride a Bike	Doing Well in Class
13th	Remembering Objects	Walking Around Remembering	Asking Questions	Drawing a Circle
14th	Tasting	Food Store (breakfast)	Writing Letter, Name	Drawing a Circle
15th	Finding Objects	Food Store (breakfast)	Writing Letter, Name	Drawing a Circle
16th	Telling a Story	Food Store (lunch)	Looking for a Ball	Memory (Visual Designs)
17th	Sounds	Food Store (Lunch)	Looking for a Pencil	Memory (Visual Designs)
18th	Cold, Short, Tall	Food Store (dinner)	Looking for a Pencil	Memory (Visual Designs)
19th	Sounds	Food Store (dinner)	Looking for a Pencil	Memory (Visual Designs)
20th	Sounds	Clothing Store	Remembering Sound Patterns	Memory (Visual Designs)
21st	Sounds	Clothing Store	Remembering Sound Patterns	Memory (Visual Designs)
22nd	Bedroom	Going to School	Remembering Sound Patterns	Memory (Visual Designs)

DAY	IMAGINATION	GUIDED IMAGINATION	BE A	THINK OF
23rd	Animal	Going to School	Remembering Sound Patterns	Memory (Visual Designs)
24th	People Talking	Going to School	Remembering Sound Patterns	Memory (Visual Designs)
25th	People Talking	Coming Into Class	Remembering Sound Patterns	Instructional Program
26th	Being a Pencil	Coming Into Class	Remembering Sound Patterns	Instructional Program
27th	Asking Questions	Going Home From School	Remembering Sound Patterns	Instructional Program
28th	A Story	Doing Work In Class	Remembering Sound Patterns	Instructional Program
29th	Visual Image	Asking Questions	Remembering Sound Patterns	Instructional Program
30th	Self Talk	Eating	Confusion, Confidence	Instructional Program
31st	Self Talk	Opening Presents	Tree	Instructional Program
32nd	Self Talk	Playing Games	Mad, Happy	Instructional Program
33rd	Asking Questions	Playing Ball	Memory (Visual Objects)	Instructional Program
34th	Swinging	Finding Something	Memory (Visual Objects)	Instructional Program
35th	Cold, Warm, Rough	Rocket Trips	Memory (Visual Objects)	Instructional Program
36th	Eating	Sound Location	Memory (Visual Objects)	Instructional Program
37th	Memory (Imitation)	Sound Location	Memory (Visual Objects)	Instructional Program
38th	Pretend	Swinging	Tree	Walking to the Door
39th	Eating	Playing Ball	Sad, Happy	Around the Room
40th	Hiding	Walking on the Ceiling	Mad, Happy	Direction Series
41st	Chair	Playing Ball	Tired, Awake	Direction Series
42nd	Being the Teacher	Toy Store	Ride a Bike	Doing Well in Class
43rd	Hiding	Food Store, Favorite Meals	Memory (Visual Designs)	Instructional Program
44th	Pantomining-Eating	Sound Location	Memory (Visual Designs)	Instructional Program

LEARNING HANDICAPPED VISUALIZATION

Daily Content

DAY	GUIDED IMAGINATION	INFORMATION	BE A	PICTURE A TIME WHEN
1st	Flying Bird	What It Is	Tree	Walking to Class
2nd	Stand and Turn	Being Vs. Doing	Hill/Mountains	Anger, Happiness
3rd	Sports	Imagination in Sports	Birds	Uncomfortable, Comfortable
4th	Courtyard	Experiencing Feelings	Bicycle	Fear, Brave
5th	Rocket Trip	Instant Replay	Ball	Disappointment, Satisfied
6th	Walking on the Ceiling	Explorers	Table	Working at Desk
7th	Walking Around Seeing - In School	Behavior	Window	Excited, Calm
8th	Walking Around Seeing - Lunch	Writing	Pencil	Confused/Clear
9th	Walking Around Seeing - Eating Out	Drawing	Car	Frustrated, Easy
10th	Walking Around Seeing - School Yard	Smelling	Bicycle	Incomplete, Completion
11th	Toy Store	Pretending to be Others	Flower	Failure, Success
12th	Clouds in the Air	Feeling	Road Sign	Bad, Good

Learning Handicapped Visualization (Cont.) - Daily Content

DAY	GUIDED IMAGINATION	INFORMATION	BE A	PICTURE A TIME WHEN
13th	Fish in the Sea	Invention	Pencil	Hard and Easy Work
14th	Toy Store	Problem Solving	Being Keys	Poor, Better
15th	Walking Around - Hearing	Hearing	Star	Math
16th	Walking Around - Hearing	Story Telling	Wish Shop	Social Studies
17th	Store		Number	Social Studies
18th	Store	Being Something and Doing Something	Number	Math
19th	Walking Around - Hearing	Being Something and Doing Something	Being Keys	Math
20th	Walking at the Beach	Future	Book	Reading
21st	Walking at the Beach	Seeing Yourself	Kite on a String	Mad, Happy
22nd	Boat Ride	Conversation	Book	Embarrassed, Confortable
23rd	Row Boat, Ocean Liner	Movies	Balloon in the Air	Losing, Winning
24th	Walking Around - Hearing	To Live Somewhere Else	Paper	Being Picked On, Being Liked
25th	Changing, Appearances	Smoke in the Air	Airplane	Fighting

Learning Handicapped Visualization (Cont.) - Daily Content

DAY	GUIDED IMAGINATION	LOOKING AT	BE A	PICTURE A TIME WHEN
26th	Change How It Looks	Visual Memory (Objects)	Airplane	Uncomfortable, Comfortable
27th	Changing How It Looks	Visual Memory (Objects)	Letters on Page	Reading
28th	Sounds In Different Locations	Listening to Sounds	Letters on Page	Forgetting, Remembering
29th	Time Machine	Listening to Sounds	Playing Darts	Doing Well in School Work
30th	Remembering, Changing Locations of Objects	Listening to Sounds	Basketball and Net	Writing a Report
31st	Time Machine	Listening to Sounds	Baseball and Bat	Giving Oral Report
32nd	Time Machine	Listening to Sounds	Soccer Ball and Shoes	Writing
33rd	Remember How Others Look	After Dinner, Weekend	Pretending to be You	Meeting a Stranger
34th	Memory (Details)	Looking Out Window	Pretending to be You	Sitting on Grass
35th	Memory - Sound Location	Doing Better in School	Person You Would Like to Be	Getting Help
36th	Memory (Objects)	Sad, Happy, in School	Helping Others, Getting Help	Math
37th	Remembering How Others Look	After Dinner, Weekend	Pretending to Be You	Meeting a Stranger

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Learning Handicapped Visualization (Cont.) - Daily Content

DAY	GUIDED IMAGINATION	LOOKING AT	BE A	PICTURE A TIME WHEN
38th	Being Upside Down	Quick Visual Retention	Changing Locations Quickly	Weak, Strong
39th	Seeing What You Imagine	Quick Visual Retention	Changing Locations Quickly	Wanting Not Wanting to Come to School
40th	After Class	Getting in Trouble	Introducing a New Person	Party
41st	Favorite Place	Writing Assignment	Asking Questions	You Are Not In This Group
42nd	Favorite Place	Listening to Sounds	Remembering Last Year	Group Preference
43rd	Time Machine	Listening to Sounds	Baseball & Bat	Giving Oral Report
44th	Time Machine		Person You Would Like to Be	Meeting a Stranger

T.M.R. RELAXATION

Daily Content

DAY	RELAXATION	BREATHING	SITUATION	PRACTICE
1st	Progressive: Hands	Proper	Happy, Sad	
2nd	Hands, Arms	Proper	Mad, Happy	
3rd	Progressive & Self talk: Hands, Arms	Proper	Lining Up At Door	
4th	Hands, Arms	Proper	Afraid, Brave	
5th	Arms, Feet	Proper	Afraid, Mad	
6th	Arms, Feet	Proper	Mad, Happy	
7th	Feet	Cleansing	Hurt, Feel Good	
8th	Feet, Calf	Cleansing	Tired, Wide Awake	Self Directions
9th	Feet, Legs	Cleansing	Confused, Clear	Self Directions
10th	Feet, Legs, Abdomen	Cleansing	Frustrated, Blocked, Easy	Self Directions
11th	Abdomen, Lungs	Cleansing	Not Finished, Finished	Self Directions
12th	Hands, Abdomen	Cleansing	Success	Self Directions
13th	Hands, Abdomen	Cleansing	Hard, Easy	Self Directions (Individual)
14th	Abdomen, Back	Cleansing	Not Finished, Finished	Following Directions (Drawing)
15th	Abdomen, Shoulders, Back	Cleansing	Frustration, Satisfaction	Following Directions (Drawing)
16th	Hands, Abdomen, Back	Standing	Thinking About & Moving to Object	Memory (Design) Copying
17th	Abdomen, Back, Shoulders	Standing	Thinking About & Moving to Object	Memory (Design) Copying
18th	Hands, Shoulders	Standing	Thinking About & Moving to Object	Memory (Design) Copying
19th	Shoulders	Standing	Thinking About & Moving to Object	Memory (Design) Copying
20th	Head, Neck	Standing	Memory Series (Visual)	Memory (Design) Copying
21st	Head, Neck	Standing	Memory Series (Visual)	Memory (Design) Copying

DAY	RELAXATION	BREATHING	SITUATION	PRACTICE
22nd	Forehead, Frown	Proper	Memory Series (Visual)	Memory (Design) Copying
23rd	Eyes, Face	Proper	Memory Series (Visual)	Instruction Series
24th	Forehead, Face	Proper	Memory Series (Visual)	Instruction Series
25th	Eyes, Smile	Proper	Giving Self Directions	Instruction Series
26th	Autogenic: Hands	Proper	Giving Self Directions	Instruction Series
27th	Hands, Arms	Proper	Afraid, Mad	Instruction Series
28th	Hands, Arms	Proper	Afraid, Mad	Instruction Series
29th	Arms, Feet	Proper	Memory Series (Visual-Spacial)	Instruction Series
30th	Arms, Feet	Proper	Memory Series (Visual-Spacial)	Instruction Series
31st	Feet	Proper	Memory Series (Visual-Spacial)	Instruction Series
32nd	Feet, Calfs	Cleansing	Memory Series (Visual-Spacial)	Instruction Series
33rd	Feet, Calfs	Cleansing	Memory Series (Visual-Spacial)	Instruction Series
34th	Feet, Legs	Cleansing	Memory Series (Visual-Spacial)	Instruction Series
35th	Feet, Legs	Cleansing	Memory Series (Visual-Spacial)	Instruction Series
36th	Legs, Abdomen	Cleansing	Memory Series (Visual-Spacial)	Instruction Series
37th	Abdomen, Lungs	Proper	Not Finished, Finished	Instruction Series
38th	Hands, Abdomen	Proper	Success	Instruction Series
39th	Abdomen, Back	Proper	Hard, Easy	Instruction Series
40th	Back, Shoulders	Proper	Frustration, Satisfaction	Instruction Series
41st	Hands, Shoulders	Standing	Thinking About & Moving Object	Instruction Series
42nd	Head, Neck	Standing	Thinking About & Moving Object	Instruction Series
43rd	Head, Neck	Standing	Thinking About & Moving Object	Instruction Series
44th	Forehead, Face	Standing	Thinking About & Moving Object	Instruction Series

LEARNING HANDICAPPED RELAXATION

Daily Content

DAY	RELAXATION	BREATHING	SITUATION
1st	Progressive: Hands	Proper	Anger
2nd	Hands	Proper	Anger
3rd	Hands, Arms	Proper	Anger
4th	Arms, Feet	Proper	Happiness
5th	Hands, Feet, Calfs	Proper	Fear
6th	Feet, Calf, Legs	Proper	Disappointment
7th	Hands, Feet, Legs	Cleansing	Sadness
8th	Hands, Legs, Abdomen	Cleansing	Excitement
9th	Hands, Arms, Abdomen	Cleansing	Confusion
10th	Abdomen, Lungs, Back	Cleansing	Frustration
11th	Lungs, Back, Shoulder	Cleansing	Completion
12th	Hands, Shoulders, Head	Proper	Success
13th	Shoulders, Head, Forehead	Cleansing	Bad, Good
14th	Shoulders, Forehead, Eyes, Eyebrow	Standing	Hard, Easy
15th	Neck, Forehead, Eyebrows, Eyes	Standing	Doing Better
16th	Eyes, Smile, Lips, Jaw	Standing	Math
17th	Forehead, Eyebrows, Eyes, Smile, Jaw	Standing	Social Studies
18th	Hands, Smile, Jaw, Lips	Standing	Physical Education
19th	Arms, Back, Shoulders	Cleansing	Taking Tests
20th	Feet, Legs, Abdomen	Standing	Reading
21st	Shoulders, Head, Backhead Push	Proper	Being Mad
22nd	Shoulders, Head, Fronthead Push	Proper	Embarrassment
23rd	Shoulders, Fronthead and Backhead Push	Cleansing	Being Picked On
24th	Autogenic: Hands, Arms	Cleansing	Playing
25th	Leg Stretch and Cross	Standing	Social Awareness
26th	Hands, Arms	Standing	Fighting
27th	Feet	Full	Dislikes, Likes

DAY	RELAXATION	BREATHING	SITUATION
28th	Legs	Full	Reading
29th	Abdomen	Full	Dislikes, Likes
30th	Lungs	Full	Writing Reports
31st	Back	Full	Oral Reports
32nd	Shoulders	Full	Preparing a Report
33rd	Head	Full	Meeting Someone New
34th	Forehead, Eyebrow	Full	Boredom, Motivation
35th	Eyes	Cleansing	Doing Better in Class
36th	Smile, Lips	Standing	Math
37th	Whole Body	Full	Feeling Strong, Weak
38th	Forehead, Eyebrows	Rhythmic	Coming to School
39th	Eyes, Smile, Lips, Jaw, Whole Body	Rhythmic	Writing Reports
40th	Participants Choose	Rhythmic	Fighting
41st	Participants Choose	Rhythmic	Writing Assignment
42nd	Participants Choose	Rhythmic	Feeling Good About Self
43rd	Participants Choose	Rhythmic	Meeting Someone New
44th	Participants Choose	Rhythmic	Projection of Doing Something Well, Poorly

MOVEMENT

DAILY CONTENT

Teacher's Explanation of Dance
The Hustle
The Bus Stop
The Roller Coaster
The Cha Cha

1ST. DAY
Warm-up; Hustle: Walking, Steps; Reflection; Dismissal

2ND. DAY

Warm-up; Hustle: Review Walking Steps, Side Steps; Reflection; Dismissal

3RD. DAY
Warm-up; Hustle: Review Walking Steps and Side Steps; Bus Stop: Tapping Steps; Reflection; Dismissal

4TH. DAY
Warm-up; Hustle: Review Walking Steps and Side Steps, Hopping Steps; Bus Stop: Tapping Steps; Reflection; Dismissal

5TH. DAY
Warm-up; Hustle: Review Walking Steps, Side Steps and Hopping Steps; Bus Stop: Tapping Steps; Reflection; Dismissal

6TH. DAY
Warm-up; Hustle: Review Walking Steps, Side Steps and Hopping Steps, Tapping Steps and Kick; Bus Stop: Tapping Steps; Reflection; Dismissal

7TH. DAY
Warm-up; Hustle: Review all steps; Bus Stop: Rocking Steps; Reflection; Dismissal

8TH. DAY
Warm-up; Hustle: Review all steps; Bus Stop: Rocking Steps; Reflection; Dismissal

9TH. DAY
Warm-up; Hustle: Review all steps; Bus Stop: Rocking Steps; Reflection; Dismissal

10TH. DAY
Warm-up; Hustle: All steps in sequence twice; Bus Stop: Shuffle Steps; Reflection; Dismissal

11TH. DAY
Warm-up; Hustle: All steps in sequence four times; Bus Stop: Shuffle Steps; Reflection; Dismissal

12TH. DAY
Warm-up; Hustle: All steps in sequence four times; Bus Stop: Shuffle Steps; Reflection; Dismissal

13TH. DAY
Warm-up: Hustle; Bus Stop: Tapping Steps; Roller Coaster: 1st sequence; Reflection; Dismissal

14TH. DAY
Warm-up: Hustle; Bus Stop: Review Tapping Steps; Roller Coaster: 1st sequence; Reflection; Dismissal

15TH. DAY
Warm-up: Hustle; Bus Stop: Review Tapping Steps, Rocking Steps, Roller Coaster: 1st Sequence; Reflection; Dismissal

16TH. DAY
Warm-up: Hustle; Bus Stop: Review Tapping Steps and Rocking Steps; Roller Coaster: 1st sequence; Reflection; Dismissal

33RD. DAY
Warm-up: Hustle; Roller Coaster: Review 1st, 2nd, 3rd, and 4th sequences, 5th sequence; Bus Stop; Cha Cha: Walking Steps; Reflection, Dismissal

34TH. DAY
Warm-up: Hustle; Roller Coaster: Review 1st, 2nd, 3rd, 4th, and 5th sequences; Bus Stop; Cha Cha: Rocking Steps and Walking Steps; Reflection; Dismissal

35TH. DAY
Warm-up: Hustle, Roller Coaster: Review 1st, 2nd, 3rd, 4th, and 5th sequences, 6th sequence; Bus Stop; Cha Cha: Rocking Steps and Walking Steps; Reflection; Dismissal

36TH. DAY
Warm-up: Hustle: Roller Coaster: Review all steps; Bus Stop; Cha Cha: Rocking Steps and Walking Steps; Reflection; Dismissal

37TH. DAY
Warm-up: Hustle: Roller Coaster: All steps in sequence four times; Bus Stop; Cha Cha: Rocking Steps and Walking Steps; Reflection; Dismissal

38TH. DAY
Warm-up: Hustle; Cha Cha: Rocking Steps and Walking Steps; Bus Stop; Roller Coaster; Reflection; Dismissal

39TH. DAY
Warm-up: Hustle; Cha Cha: Review Rocking Steps and Walking Steps; Bus Stop; Roller Coaster; Reflection; Dismissal

40TH. DAY
Warm-up: Hustle; Cha Cha: Review Rocking Steps, Walking Steps and Rocking Steps, Walking Steps; Bus Stop; Roller Coaster; Reflection; Dismissal

41ST. Day
Warm-up: Hustle; Cha Cha: Review Rocking Steps, Walking Steps and Rocking Steps, Walking Steps; Bus Stop; Roller Coaster; Reflection; Dismissal

42ND. DAY
Warm-up: Hustle; Cha Cha: Review all steps in sequence twice; Bus Stop: Roller Coaster; Reflection; Dismissal

43RD. DAY
Warm-up: Hustle; Cha Cha: Review all steps, turns; Bus Stop; Roller Coaster; Reflection; Dismissal

44TH. DAY
Warm-up: Hustle; Cha Cha: All steps with turns; Bus Stop; Roller Coaster; Reflections; Dismissal

45TH. DAY
Warm-up: Hustle, Cha Cha: All steps with and without turns; Bus Stop, Roller Coaster; Reflection; Dismissal

APPENDIX C

This program includes lesson plans for forty-four sessions in movement. It provides instruction for four dances: The Hustle, The Bus Stop, The Roller Coaster, and The Cha Cha. The program extends over an eleven week period, with four lessons per week and twenty minutes per each lesson. The first three dances, The Hustle, The Bus Stop, and The Roller Coaster, each have concentrated instruction in three week blocks. The Cha Cha is covered in the last two weeks. However, the program is designed in such a way that parts of dances overlap. This means that on most days, parts from at least two of the dances are experienced and practiced.

To aid the teacher there is a Teacher Explanation of each of the four dances at the beginning of the program. In order to refresh the teacher's memory for a particular dance, the written instructions appear again just before a dance is introduced.

Each session begins with a three minute warm-up. This gives the students and the teacher a chance to relax and ready themselves for more structured movement. After the first dance, The Hustle, is learned, it becomes the warm-up activity, thus giving continual exposure to the different directions experienced within this dance. After the warm-up, the body of the daily lesson is composed of the steps for one dance. After the first few days of a particular dance and at the end of every instruction, there is a segment from the next dance to be learned. Therefore, students get a preview of the dance to come.

The last part of each lesson is reflection. At this time, the teacher asks each student individually to explain verbally the sequence of his/her beginning movements experienced after the warm-up. Appropriate questionning is exemplified on the page following the introduction. The students are encouraged to verbalize their reflections rather than act them out physically.

This movement program is a skeleton which provides the structure and amount of material presented each day. The program has a recommended ratio of one teacher to four students. It has been used with two different groups of students, learning handicapped and trainable mentally retarded. The

differences in these two groups of students require different utilization of the materials.

The students within the learning handicapped (L.H.) grouping may vary greatly in their gross motor control and coordination. Therefore, the students in this group may learn the dances at very different rates. Some students may take only a short time to learn each dance. However, this should not be a problem since the main goal of the program is not to learn the dances, but rather to experience varied directional movements. If students become bored with one dance or one part of a dance, the delivery of instruction can be accelerated and the amount of practice of the entire dance can be increased. Also, the program is designed in such a way that parts of the other dances can be taught or practiced at times other than those designated.

Reflection with individual learning handicapped students may take all of the five to seven minutes alloted for this purpose each day. It is helpful to plan an alternative activity so that other students can be working while one is involved in reflection with the teacher. Activities might include drawing, group murals, and group collages.

Students in the L. H. grouping often use the terms left and right in their reflections. These terms can be used although the program is not designed to teach these terms specifically.

Just as speed of delivery can be increased for students in the L.H. grouping, speed of delivery may be slowed for the students in trainable mentally retarded (T.M.R.) groups. For these students, a dance may be eliminated if necessary, or the program can be extended over a longer time period.

When working with T.M.R. students, modeling and touch aid can be used to assist in teaching. A teacher may find it helpful to demonstrate the whole dance or parts of the dance as students watch. This can add to a sense of the whole activity. It is also recommended that the teacher and children hold hands while dancing. Holding hands and dancing in a circle is found beneficial in that it provides eye contact and keeps the students' attention. A variation on holding hands is accomplished by the use of a hool-a-hoop or a broomstick handle.

Students who have participated in this program expressed both verbal and nonverbal feelings of enjoyment and accomplishment. This is demonstrated by the fact that many students who learn the dances teach them to others.

MUSIC FOR MOVEMENT PROGRAM

I'M YOUR BOOGIE MAN	KC AND THE SUNSHINE BAND
THE HUSTLE	VAN MC COY
LOVE ROLLERCOASTER	OHIO PLAYERS
PLAY THAT FUNKY MUSIC	WILD CHERRY
FAME	DAVID BOWIE
AIN'T GONNA BUMP NO MORE (with no big fat woman)	JOE TEX
SHAKE YOUR BOOTY	KC AND THE SUNSHINE BAND
DISCO DUCK	RICK DEES
YOU SHOULD BE DANCING	BEE GEES

THE HUSTLE

FIRST WEEK - FIRST DAY

Teacher's Explanation of Dance.

Hustle - Description of the entire dance.

Walking Steps

1-3 - Take 3 steps backward starting with right foot.

4 - Tap with left foot.

5-7 - Reverse the above: take 3 steps forward starting with left foot.

8 - Tap with right foot.

REPEAT 1-4

REPEAT 5-8 *Except - Last step forward do not tap right foot.

Side Steps

From together position...

1-3 - Step to right side two times, lead right foot.

4 - Tap left toe next to right foot.

5-7 - Reverse step - two steps to left, lead left foot.

8 - Tap right toe next to left foot.

Hopping Steps

1-2 - Hop forward (both feet) for 2 counts.

3-4 - Hop backwards (both feet) for 2 counts.

5 - Hop forward for 1 count.

6 - Hop backward for 1 count.

7-8 - Lift and click heels twice.

Tap Steps

1-2 - Tap with right foot twice in front.

3-4 - Tap with right foot twice in back.

5 - Tap with right foot front.

6 - Tap with right foot back.

7 - Tap with right foot side.

8 - Kick right foot across in front while turning a quarter turn to the left.

REPEAT ENTIRE SEQUENCE 4 TIMES

Teacher places markers on the floor in a line.

Good morning.

Follow me around the room and do what I do.

Teacher marches around the room in follow-the-leader style. Teacher moves arms and legs to music. Duration: 3 minutes.

My name is _____. We are going to spend this time together for the next 12 weeks. We will meet here on all school days except Friday. You will learn four dances. Find a marker on the floor and stand on it. Let's begin with The Hustle. This is the first part. It's called the walking step. Listen and do what I do.

Teacher turns back to students and demonstrates while verbalizing.

Start with this leg.	Point to right leg.
Take three steps backward.	1-2-3
Point to the side with your free foot.	4
Start with this leg.	Point to left leg.
Take three steps forward.	5-6-7
Point to the side with your free foot.	8
Start with this leg.	Point to right leg.
Take three steps backwards.	1-2-3
Point to the side with your free foot.	4
Start with this leg.	Point to left leg.
Take three steps forward.	5-6-7
Do not point. Bring feet together.	8

This time I will only count the beats as we dance together.

Teacher demonstrates and counts as students follow.

Backward	1-2-3
Point	4
Forward	5-6-7
Point	8
Backward	1-2-3
Point	4
Forward	5-6-7
Together	8

Let me see you do that without me.

With music, teacher counts the beats without giving directional cues.

1-2-3-4
5-6-7-8
1-2-3-4
5-6-7-8

This time dance without me. I am not going to count. I will say Ready Begin.

With music, teacher observes students and helps them individually.

READY BEGIN.

Good, sit down on your mark. I will come around and talk with each of you.

Teacher does reflection with each member of the group.

That will be all. Get ready to go back to class. See you tomorrow.

FIRST WEEK - SECOND DAY

Good morning.

Follow me around the room and do what I do.

Teacher marches around the room in a follow-the-leader style. Teacher moves arms and legs to music. Duration: 3 minutes.

Find a marker on the floor and stand on it. Let's review the walking steps.

Teacher turns back to students and demonstrates while verbalizing.

START with this leg	Point to right leg.
Take three steps backward	1 - 2- 3
POINT to the side with your free foot.	4
Now, START with this leg.	Point to left leg.
Take three steps forward.	5 - 6 - 7
POINT to the side with your free foot.	8
START with this leg.	Point to right leg.
Take three steps backward.	1 - 2 - 3
POINT to the side with your free foot.	4
Now, START with this leg.	Point to left leg.
Take three steps forward.	5 - 6 - 7
DO NOT POINT, bring feet together.	8

Let me see you do the walking steps without me. I will count the beats.

Teacher counts the beats with directional cues.

Teacher observes and helps students individually.

Backward	1-2-3
Point	4
Forward	5-6-7
Point	8
Backward	1-2-3
Point	4
Forward	5-6-7
Together	8

Good, everyone start in this last position, and do the side steps as I do.

Without music, teacher demonstrates while verbalizing.

START with this leg. Point to your right leg.
Take one step to the side.
Bring your feet together.
START with this leg. Point to your right leg.
Take another step to the side.
This time bring your feet together but touch the floor with your toes.
START with this leg. Point to your left leg.
Take one step to the side.
Bring your feet together.
START with this leg. Point to your left leg.
Take another step to the side.
Bring your feet together.

Let me see you do the side steps without me. I will count the beats.

Begin in this position....

With music, teacher counts the beats and gives directional cues.

Side 1
Together 2
Side 3
Touch 4
Side 5
Together 6
Side 7
Together 8

Sit down on your mark. I will come around and talk with each of you.

Teacher does reflection with each member of the group.

That will be all. Get ready to go back to class. See you tomorrow.

APPENDIX D

Intervention Program for Control Group - Children's Literature

The control group received forty-eight, twenty-minute sessions of a literature program designed to acquaint them with some of the classics in childrens literature.

This program was chosen because it, unlike the experimental strategies, is similar to the present curriculum in the children's classrooms. The literature program will serve as enrichment for those children assigned to the control group. These children are not ready to read for themselves but can derive benefits from the classics if they are read to the children by a sensitive and enlightened teacher.

The specific books chosen for this program have been carefully selected to fulfill the needs experts feel can be met through literature. May Hill Arbuthnot, in her book Children and Books, states these needs as follows:

Competence - the need to achieve
Material security - the need for physical well-being
Intellectual security - the need to know
Emotional security - the need to love and to be loved
Acceptance - the need to belong
Play - the need for change
Aesthetic satisfaction - the need for beauty and order

Good reading can help children satisfy these basic needs vicariously if not in reality. The books selected for this program have been chosen because of their literary quality and their ability to bring maximum enjoyment and further the children's insights into their own problems and the problems of other people.

Children's Literature - Trainably Mentally Retarded Control Group

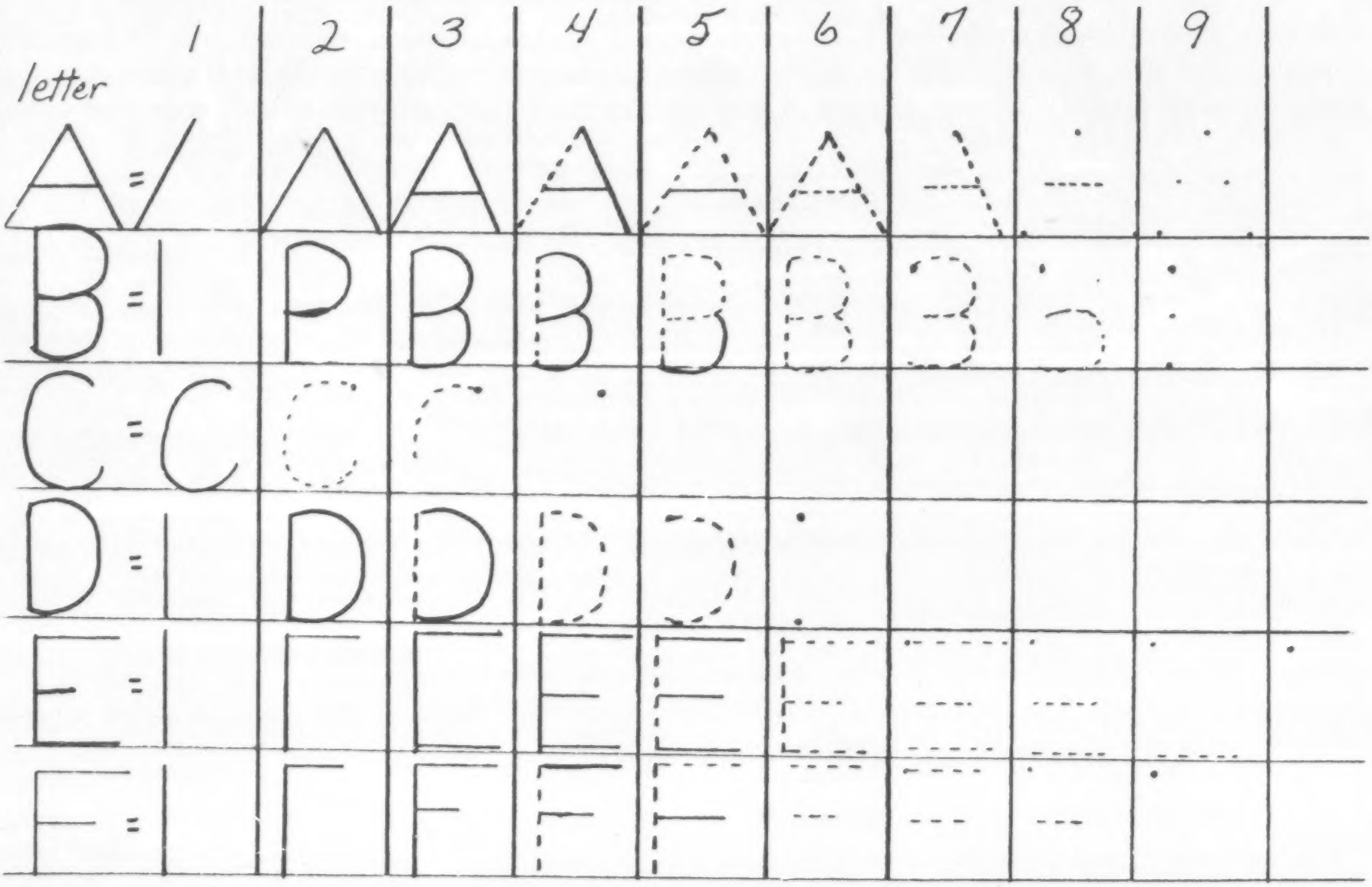
Make Way for Ducklings	Robert McCloskey
Madeline	Ludwig Bemelmans
Sylvester and the Magic Pebble	William Steig
May I Bring a Friend	Montresor
The Big Snow	Hader
Mother Goose	illustrated by Tasha Tudor
Time of Wonder	Robert McCloskey
Madeline's Rescue	Ludwig Bemelmans
The Little Island	Leonard Weisgard
The Little House	Virginia Barton
The Rooster Crows	Petershan
The Snowy Day	Keats
The Funny Little Woman	Mosel
Song of the Swallows	Leo Politi
The Fool of the World	Drummer Hoff
Where the Wild Things Are	Maurice Sendak
Finders Keepers	Caldecott
Nine Days to Christmas	Caldecott
The Egg Tree	Caldecott
It Could Be Worse	Caldecott
Buzz Buzz Fuzz	Byron Barto
Trixie and the Tiger	Victoria Cabassa
Good Night	Eliza Coatsworth
Nicholas	Ginny Cowles
Little Lost Lamb	Golc McDonald
Animals Search for Summer	Natha Caputa
A Moose is Not a Mouse	Harold Berson
Fun on Wheels	Joanne Cole
Wheel on the Chimney	Marga[illegible] Wise Brown
Good Morning Whale	Achim Broger
Chanticlear and the Fox	Barbara Cooney
Joe and the Snow	Tommie De Paola
A Home for My Kittens	Albertine Deletaille

Down to the Beach	May Gavelick
The Little Train	Graham Green
Claude Pepper	Dick Gackenback
The Gorilla Did It	Barbara Hozen
Wild Robin	Susan Jeffers
How Not to Catch a Mouse	Eigoro Futamata
The Little Hen and the Giant	Maria Polushkin
Anatole and the Cat	Eve Titus
The Witch's Cat	Harwood Thompson
The Remarkable Egg	Adelaide Holl
Cheer Up Pig	Nancy Jewele
A Monster's Visit	Bemar Lord
Thy Friend Obadiah	Brintor Turkle
Trixie and the Tiger	Victoria Cabassa

Children's Literature - Learning Handicapped Control Group

Anthology of Children's Literature	Johnson, Sickels, Sayers
The Doughnuts	Homer Price
Hans Brinker	Hans Christian Andersen
The Tinder Box	Hans Christian Andersen
Charlotts Web	E. B. White
Centerburg Tales	Robert McClosdey
The Hungry Thing	Jan Slepian and Ann Seidler
The Monkey and the Crocodile	Paul Galdone
Three Aesop Fox Fables	Paul Galdone
Andrew Henry's Meadow	Doris Burn
Blaze and the Gray Spotted Pony	C. W. Anderson
Millicent the Monster	Mary Lystad
A Mad Wet Hen	Joseph Low

APPENDIX E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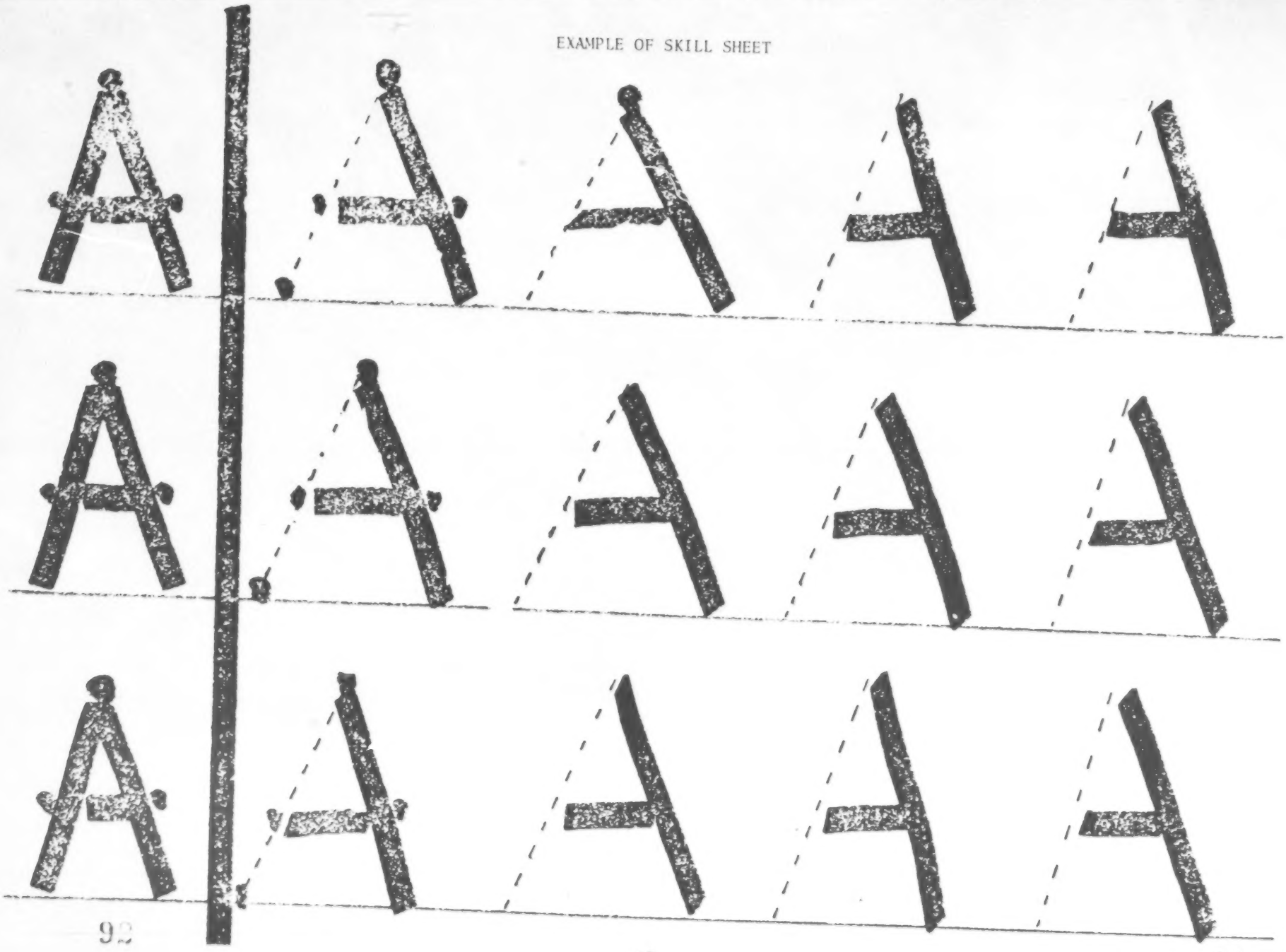
EXAMPLE OF SKILL SHEET



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